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FALL WATER SUPPLY SUMMARY FOR NEVADA

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Collaborating with
NEVADA DEPARTMENT of CONSERVATION
and NATURAL RESOURCES
DIVISION of WATER RESOURCES

Data included in this report were obtained by the agencies named above in cooperation with Federal, State and private organizations listed inside the back cover of this report.

AS OF
OCT. 1, 1977

TO RECIPIENTS OF WATER SUPPLY OUTLOOK REPORTS:

Most of the usable water in western states originates as mountain snowfall. This snowfall accumulates during the winter and spring, several months before the snow melts and appears as streamflow. Since the runoff from precipitation as snow is delayed, estimates of snowmelt runoff can be made well in advance of its occurrence. Streamflow forecasts published in this report are based principally on measurement of the water equivalent of the mountain snowpack.

Forecasts become more accurate as more of the data affecting runoff are measured. All forecasts assume that climatic factors during the remainder of the snow accumulation and melt season will interact with a resultant average effect on runoff. Early season forecasts are therefore subject to a greater change than those made on later dates.

The snow course measurement is obtained by sampling snow depth and water equivalent at surveyed and marked locations in mountain areas. A total of about ten samples are taken at each location. The average of these are reported as snow depth and water equivalent. These measurements are repeated in the same location near the same dates each year.

Snow surveys are made monthly or semi-monthly from January 1 through June 1 in most states. There are about 1900 snow courses in Western United States and in the Columbia Basin in British Columbia. Networks of automatic snow water equivalent and related data sensing devices, along with radio telemetry are expanding and will provide a continuous record of snow water and other parameters at key locations.

Detailed data on snow course and soil moisture measurements are presented in state and local reports. Other data on reservoir storage, summaries of precipitation, current streamflow, and soil moisture conditions at valley elevations are also included. The report for Western United States presents a broad picture of water supply outlook conditions, including selected streamflow forecasts, summary of snow accumulation to date, and storage in larger reservoirs.

Snow survey and soil moisture data for the period of record are published by the Soil Conservation Service by states about every five years. Data for the current year is summarized in a West-wide basic data summary and published about October 1 of each year.

COVER PHOTO: SNOW COURSE MEASUREMENTS BY A SURVEY TEAM IN UTAH'S WASATCH RANGE.
ORC-254-10

PUBLISHED BY SOIL CONSERVATION SERVICE

The Soil Conservation Service publishes reports following the principal snow survey dates from January 1 through June 1 in cooperation with state water administrators, agricultural experiment stations and others. Copies of the reports for Western United States and all state reports may be obtained from Soil Conservation Service, West Technical Service Center, Room 510, 511 N.W. Broadway, Portland, Oregon 97209.

Copies of state and local reports may also be obtained from state offices of the Soil Conservation Service in the following states:

STATE	ADDRESS
Alaska	Room 129, 2221 East Northern Lights Blvd., Anchorage, Alaska 99504
Arizona	Room 3008, 6029 Federal Building, Phoenix, Arizona 85025
Colorado (N. Mex.)	P. O. Box 17107, Denver, Colorado 80217
Idaho	Room 345, 304 N. 8th. St., Boise, Idaho 83702
Montana	P. O. Box 98, Bozeman, Montana 59715
Nevada	P. O. Box 4850, Reno Nevada 89505
Oregon	1220 S.W. Third Ave., Portland, Oregon 97204
Utah	4012 Federal Bldg., 125 South State St., Salt Lake City, Utah 84138
Washington	360 U.S. Court House, Spokane, Washington 99201
Wyoming	P. O. Box 2440, Casper, Wyoming 82602

PUBLISHED BY OTHER AGENCIES

Water Supply Outlook reports prepared by other agencies include a report for California by the Water Supply Forecast and Snow Surveys Unit, California Department of Water Resources, P. O. Box 388, Sacramento, California 95802 --- and for British Columbia by the Department of Lands, Forests and Water Resources, Water Resources Service, Parliament Building, Victoria, British Columbia



WATER SUPPLY OUTLOOK FOR NEVADA

and
FEDERAL - STATE - PRIVATE COOPERATIVE SNOW SURVEYS

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RENO, NEVADA

In Cooperation with

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TABLE OF CONTENTS

WATER SUPPLY OUTLOOK FOR NEVADA.....	1
SNOTEL.....	2
NEVADA STREAMFLOW FORECASTS AND OBSERVED STREAMFLOW.....	3,4
PRECIPITATION.....	5,6,7
STORAGE STATUS OF NEVADA RESERVOIRS.....	7
LIST OF COOPERATORS.....	Inside Back Cover
ALL AVERAGES ARE FOR 1958-72 PERIOD.	

WATER SUPPLY OUTLOOK FOR NEVADA

The 1977 streamflows for the April 1 to July 31 period were minimum to near minimum on most streams in Nevada and the Eastern Sierras. This period provides most of the runoff from snowmelt for all water users.

Lake Tahoe's rise was .31 feet for the April 1 to high period, assuming gates closed. This was slightly better than last year's .21 feet. However, the Truckee River at Farad flowed only 51,000 acre-feet compared to last year's 70,000 acre-feet and the Carson River at Fort Churchill streamflow was only 5,000 acre-feet. Both rivers had record low streamflows for this period.

Reservoir storage was heavily used as a supplement to the streamflows, consequently, most storage has been depleted. Lake Tahoe flow ceased on October 1, 1977, the first time since October 25, 1961.

Streamflows on the major Sierra streams ranged from 3 to 24 percent of average. The Truckee River at Farad was 19 percent while the East Carson near Gardnerville and the West Walker near Bridgeport were 24 percent. The actual streamflows were very close to the forecasted flows issued April 1, 1977.

The Humboldt and Snake River streams had streamflows above the forecasted flows but were still only 15 to 50 percent of average. The large amount of precipitation in the high elevations during May 1 to June 15 period caused the flows to be greater than forecast. Precipitation gages located on snow courses indicated 5 to 10 inches of precipitation during this period.

Reservoir storage, exclusive of Lake Mead and Mohave, has been depleted in most cases. Lake Tahoe, Topaz, Coleville and Boca have no usable storage. Lahonton contains 22,000 acre-feet or only 18 percent of average. Stampede contains 31,000 acre-feet compared to last year's 58,000 acre-feet. Rye Patch contains 50,000 acre-feet compared to last year's 108,000 acre-feet. On the Truckee River, reservoir storage has been depleted over the past two seasons from April 1, 1976 total of 668,000 acre-feet to an October 1, 1977 total of only 42,000 acre-feet.

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S N O T E L

The Soil Conservation Service has 12 SNOTEL (Snow Telemetry) sites completed in Nevada and California for operation this season. Data will be received twice daily or can be obtained on demand from these sites for snow water equivalent, total precipitation and air temperature. Sensor installation without radio communication is complete for an additional 27 sites, so precipitation readings will be taken manually at these sites concurrently with the gathering of snow survey information.

By next season, 34 sites will be completed with radios and a remaining 13 sites installed the following year. SCS Nevada Snow Survey Unit will have a total of 47 sites on the SNOTEL system upon completion.

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APRIL - JULY 1977
NEVADA STREAMFLOW FORECASTS
AND
OBSERVED STREAMFLOW

The following table contains April-July forecasts made during the past winter. Observed streamflow quantities are provisional and were furnished by the U.S. Geological Survey.

FORECAST STREAMS	April - July Streamflow (Thousand Acre-feet)						
	Forecast				Observed 1977	Average 1958-72	Observed 1977 as % of 15- yr. avg.
	Feb. 1 1977	Mar. 1 1977	Apr. 1 1977	May 1 1977			
<u>TRUCKEE RIVER</u>							
Little Truckee above Boca, CA ¹		12	12	10	7	89	8
Truckee at Farad, CA ¹		40	40	43	51	267	19
Lake Tahoe Rise ³		.15	.15	.06	.31	1.67	19
Galena Creek near Steamboat, NV		1.8	2.0	-	1.8	5.3*	34
Steamboat Creek at Steamboat		1.8	2.0	-	0.6	5.6*	11
<u>CARSON RIVER</u>							
E. Carson nr Gardnerville, NV (Date of 200 c.f.s flow)		45 6/10	40 6/10	39 5/21	43 6/16	182 7/20	24 -
W. Carson at Woodfords, CA		14	12	12	12	52	23
Carson nr Carson City, NV		20	15	13	17	178	10
Carson nr Ft. Churchill, NV		10	9	6	5	159	3
<u>WALKER RIVER</u>							
E. Walker nr Bridgeport, CA ²		8	6	5	9	68	13
W. Walker below Little Walker near Coleville, CA	45	45	45	41	35	145	24
<u>HUMBOLDT RIVER</u>							
Lamoille Creek nr Lamoille, NV		7	8	7	14	28	50
S. Fork Humboldt above Dixie Cr.		15	16	12	NA	66	-
Marys Rv. above Hot Springs, NV		9	8	3	NA	34	-
N. Fork Humboldt at Devils Gate, NV		5	5	4	5	32	16

FORECAST STREAMS	April - July Streamflow (Thousand Acre-feet)						
	Forecast				Observed	Average	Observed
	Feb.	Mar.	Apr.	May			1977 as
	1	1	1	1			% of 15-
	1977	1977	1977	1977	1977	1958-72	yr. avg.

HUMBOLDT RIVER (Continued)

Humboldt at Palisade, NV	40	20	20	22	65	193	34
Humboldt at Comus, NV		12	12	15	NA	149	-
Kingston Creek nr Austin, NV		1.0	2.6	-	1.3	3.7*	35
Little Humboldt River near Paradise Valley, NV		1	1.0	-	2.7	10.2*	27
Reese River near Ione, NV		1.4	4.2	-	5.8	16*	36
Rock Cr. nr Battle Mountain, NV		1.9	5	-	0.5	19.2*	3
Martin Cr. near Paradise, NV		4	3	2	5	16	31

SNAKE RIVER

Owyhee nr Gold Creek, NV ¹	5	3	2	1	NA	18	-
Owyhee nr Owyhee, NV ¹	15	12	9	6	NA	68	-
South Fork Owyhee River near White Rock, NV		5	8	12	8	94*	9

GREAT NORTHERN BASIN

Quinn River near McDermitt, NV		1	1	-	0.3	22*	1
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EASTERN NEVADA

Franklin River near Arthur, NV		1.7	3.2	-	4.9	7.2*	68
Steptoe Creek near Ely, NV		0.8	0.8	-	1.1	2.7*	40

¹ Corrected for storage above station.

² April-August flow, corrected for storage.

³ Maximum rise in feet from April 1, assuming gates closed.

* All available data.

NA Not available

PRECIPITATION (Inches)		CURRENT RECORD			PAST RECORD
BASIN AND PRECIPITATION GAGE LOCATION	ELEVATION	PERIOD MEASUREMENT	ACCUM. PRECIP. FOR THE PERIOD	ACCUM. PRECIP. SINCE 10/1/76	ACCUM. PRECIP. PREVIOUS YEAR
<u>LAKE TAHOE - TRUCKEE</u>			(Inches)	(Inches)	(Inches)
Echo Peak	7800	4/26/77 to 5/28/77 5/28/77 to 9/22/77	5.2 2.9	21.1 24.0	36.0
Fallen Leaf	6240	4/28/77 to 9/21/77	1.0	12.4	17.1
Hagans Meadow	8000	4/26/77 to 6/23/77 6/23/77 to 9/13/77	6.1 0.5	17.6 18.1	
Independence Camp	7000	4/26/77 to 5/18/77 5/18/77 to 6/2/77 6/2/77 to 6/9/77 6/9/77 to 6/29/77 6/29/77 to 9/9/77	2.5 0.8 0.2 0.2 0.1	14.2 15.0 15.2 15.4 15.5	20.1
Independence Creek	6500	4/26/77 to 5/18/77 5/18/77 to 6/2/77 6/2/77 to 6/9/77 6/9/77 to 6/29/77 6/29/77 to	2.4 0.5 0 1.1 NA	13.7 14.2 14.2 15.3	
Independence Lake	8450	4/26/77 to 5/18/77 5/18/77 to 7/27/77 7/27/77 to 9/12/77	3.1 3.4 0	19.9 23.3 23.3	
Marlette Lake	8000	4/26/77 to 5/6/77 5/6/77 to 6/10/77 6/10/77 to 6/22/77 6/22/77 to 6/29/77 6/29/77 to 9/8/77	1.0 6.5 0.6 0 0.4	12.6 19.1 19.7 19.7 20.0	19.7
Mount Rose	9000	4/26/77 to 6/24/77 6/24/77 to 9/21/77	1.0 0.6	12.6 15.0	24.2
Tahoe City Cross	6750	3/28/77 to 6/20/77 6/20/77 to 6/23/77 6/23/77 to 9/12/77	6.4 0 0.4	17.0 17.0 17.4	17.1
Truckee #2	6400	3/30/77 to 9/21/77	5.2	13.2	13.2
Ward Creek #3	6750	4/26/77 to 6/18/77 6/18/77 to 6/23/77 6/23/77 to 9/21/77	7.7 0 2.5	30.7 30.7 33.2	41.3
NA Not Available					

PRECIPITATION (Inches)		CURRENT RECORD			PAST RECORD
BASIN AND PRECIPITATION GAGE LOCATION	ELEVATION	PERIOD MEASUREMENT	ACCUM. PRECIP. FOR THE PERIOD	ACCUM. PRECIP. SINCE 10/1/76	ACCUM. PRECIP. PREVIOUS YEAR
			(Inches)	(Inches)	(Inches)
<u>CARSON-WALKER</u>					
Ebbetts Pass	8700	4/26/77 to 5/28/77 5/28/77 to 6/28/77 6/28/77 to	5.4 0 NA	20.3 20.3	28.9
Lobdell Lake	9200	4/26/77 to 6/2/77 6/2/77 to 6/30/77 6/30/77 to 9/13/77	2.2 2.9 0.3	8.1 11.7 12.0	
Poison Flat	7900	4/26/77 to	NA		
Sonora Pass Bridge	8800	4/26/77 to 6/2/77 6/2/77 to 6/28/77 6/28/77 to	2.6 0.9 NA	16.7 17.6	22.2
Virginia Lakes Ridge	9200	4/26/77 to 6/2/77 6/2/77 to 6/27/77	4.1 2.4	22.8 25.2	
Wet Meadows #2	8050	4/26/77 to 7/2/77 7/2/77 to	7.6 NA	19.4	18.0
<u>HUMBOLDT</u>					
Corral Canyon	8500	3/31/77 to 6/14/77 6/14/77 to 9/28/77	8.9 6.7	20.3 27.0	
Dorsey Basin	8100	4/26/77 to 7/19/77 7/19/77 to 9/15/77	9.2 3.3	22.0 25.3	16.0
Green Mountain	8000	3/31/77 to	NA		15.6
Lamoille #3	7700	4/26/77 to	NA		
Rodeo Flat	6800	4/26/77 to 6/15/77 6/15/77 to 7/12/77 7/2/77 to 9/26/77	4.3 1.3 2.0	12.7 14.0 16.0	24.0
<u>SNAKE - OWYHEE</u>					
Bear Creek	7800	4/26/77 to 6/14/77 6/14/77 to 9/27/77	8.6 5.2	23.6 28.8	33.1
Big Bend	6700	4/26/77 to 6/15/77 6/15/77 to 9/26/77	4.4 2.7	16.3 19.0	19.5
Goat Creek	8800	3/30/77 to 9/28/77	16.0	30.0	
NA Not Available					

PRECIPITATION (Inches)		CURRENT RECORD		PAST RECORD	
BASIN AND PRECIPITATION GAGE LOCATION	ELEVATION	PERIOD MEASUREMENT	ACCUM. PRECIP. FOR THE PERIOD	ACCUM. PRECIP. SINCE 10/1/76	ACCUM. PRECIP. PREVIOUS YEAR
			(Inches)	(Inches)	(Inches)
<u>SNAKE - OWYHEE (Continued)</u>					
Jack Creek, Upper	7250	4/21/77 to 6/15/77	0.0	27.6	
		6/15/77 to 7/21/77	0.1	27.7	
		7/21/77 to 9/26/77	1.4	29.1	
Jacks Peak	8420	4/26/77 to 9/26/77	12.4	37.0	
Pole Creek R. S.	8330	3/30/77 to 9/28/77	16.0	30.0	
76 Creek	7100	4/26/77 to 6/15/77	2.6	9.5	
		6/15/77 to 9/27/77	3.1	12.6	12.5
Taylor Canyon	6200	4/26/77 to 6/15/77	4.2	12.7	
		6/15/77 to 9/26/77	1.1	13.8	18.0
<u>EASTERN NEVADA</u>					
Berry Creek	9100	4/25/77 to 6/1/77	7.3	22.5	
		6/1/77 to 9/15/77	7.5	30.0	

NEVADA STATUS OF RESERVOIR STORAGE

October 1, 1977

Basin and Stream	Reservoir	Usable Capacity (1,000 AF)	Usable Storage - 1,000 acre-feet			
			1977	1976	1975	15-year Average 1958-72
Owyhee	Wild Horse	72	20	44	62	18
Lower Humboldt	Rye Patch	172	50	108	142	89
Colorado	Mohave	1,810	1,465	1,721	1,385	1,402
Colorado	Mead	26,159	20,205	20,062	20,154	17,326
Tahoe	Tahoe	732	0	310	589	445
Truckee	Boca	41	5	30	37	14
Truckee	Prosser	30*	6	0	11	15**
Truckee	Stampede	220	31	58	148	Storage began 8/1/69
Carson	Lahontan	291	22	72	167	120
West Walker	Topaz	59	0	6	22	18
East Walker	Bridgeport	42	0	4	18	15

* Flood control use allocation of 20,000 AF between November 1 and April 10.

** Storage began 1/30/63.

Agencies Cooperating in Collecting Data Contained in this Bulletin

FEDERAL

- Agricultural Research Service
- Bureau of Reclamation
- Fish and Wildlife Service
- Forest Service
- Geological Survey
- Navy
- Sail Conservation Service
- U. S. District Court - Federal Water Master
- NOAA, National Weather Service

STATE

- California Cooperative Snow Surveys
- California Department of Parks and Recreation
- California Department of Water Resources
- Calarada River Cammission of Nevada
- Idaho Cooperative Snow Surveys
- Nevada Association of Conservation Districts
- Nevada Department of Conservation & Natural Resources
 - Division of Water Resources
- Nevada State Forester
- Oregon Cooperative Snow Surveys
- Utah Cooperative Snow Surveys
- White Mountain Research Station, Univ. of California

PRIVATE

- Amalgamated Sugar Company
- Kennecott Copper Corporation
- Nevada Irrigation District
- Owyhee Project North Board of Control
- Owyhee Project South Board of Control
- Pacific Gas and Electric Company
- Pershing County Water Conservation District
- Sierra Pacific Power Company
- Truckee-Carson Irrigation District
- Walker River Irrigation District
- Washoe County Water Conservancy District

Other organizations and individuals furnish valuable information for the snow survey reports. Their Cooperation is gratefully acknowledged.

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supply, hydro-electric power
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